

REMARKS

Regarding the rejection of claim 1 as being anticipated under 35 USC 102(b) by Jarrett (U.S. 5,252,070), it is incorrect for the Examiner to state that Jarrett's actuator is for causing the movable headrest to execute attitudinal movements for emulation by the head of the user acting as a passive viewer, as claimed.

Even if Jarrett's actuator were to cause vertical movement as a result of the vertical force applied to the helmet, which is not mentioned by Jarrett, such would only be a vertical, i.e., linear translation in position, not corresponding to the claimed attitudinal movements.

In fact, Jarrett states at col. 1, lines 64-65, that ". . . it is important that normal head movements are not inhibited and that inappropriate rotation torques or lateral and longitudinal forces are not applied". Elsewhere in the specification at col. 4, lines 31-35, it is stated by Jarrett that ". . . the bearings of the essentially universal movement of the helmet can be designed to be virtually friction-free and the linkage brackets can be made of light-weight materials so that inertial effects are minimized".

The only thing that Jarrett does is to try to simulate a reasonable proportion of the apparent weight change of a standard helmet to simulate aircraft accelerations, which have the major effect on the pilot which appear to him to be increased weight on a vertical line (see col. 1, lines 40-51).

Moreover, the helmet of Jarrett cannot be said to be a headrest for supporting a head of a user. Nor is there a light source specifically shown for providing light for image viewing, although the Examiner's point is well-taken. Moreover, there is no description in Jarrett of the actuator of Jarrett for causing any headrest to execute attitudinal movements for emulation by the head of the trainee pilot acting as a passive viewer.

Withdrawal of the 35 USC 102(b) rejection of claim 1 is requested.

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Claims 10-13 are rejected under 35 USC 102(b) as being anticipated by Thomas (U.S. 5,320,534).

Thomas shows a simulator pilot 12 who has a wide field of regard display surface 14 a few meters from his head for having rear projected images provided by projectors fed by signals 22, 24, 26, 28 from an image generator 20. When he moves his head, a projector 40 which is attached to his helmet moves with his head and projects a higher resolution image 46 at the same distance as the screen 14, so that the high-resolution image is pointing where his head is pointing. The high-resolution image is therefore guided by the movements of his head. Thus, although the projection light source 40 changes its orientation, it is not for guiding the head of the viewer, as presently claimed, but rather for being guided by the head movements of the pilot.

That is the crucial difference here, because the present invention contemplates a passive experience, while that of Thomas is a very active experience for the simulator pilot 12 moving his head and with it the source 40.

Therefore, Thomas does not anticipate claim 10, and withdrawal of the novelty rejection thereof is requested.

Although Thomas shows a high-resolution image 48 surrounded by an intermediate-resolution image 50, both within the wide field-of-regard projected on the screen 14, it is not for a passive viewer, as claimed in claim 11. As mentioned above, the simulator pilot 12 is an active viewer and it controls where the images for high-resolution viewing are positioned. Therefore, the simulator pilot is not a passive viewer, as claimed. Withdrawal of the 35 USC 102 rejection of claim 11 is requested.

Regarding claim 12, even if the projectors 40, 32, 34 inherently included adjustable focus lenses, this is not the same as changing the apparent distances with a change in point of view. Rather, such would be for removing an unfocused condition at setup and would not be related to the claimed changing point of view for viewing the images at changing apparent

distances. The same may be said for claim 13. Withdrawal of the novelty rejection of claims 12 and 13 is requested.

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Claims 2-9, 14-16 are rejected under 35 USC 103(a) as being unpatentable over Jarrett (U.S. 5,252,070) in view of Thomas (U.S. 5,320,534). Regarding claim 2, it depends from claim 1, and it claims an actuator responsive to a headrest control signal, for causing a movable headrest to execute attitudinal movements for emulation by the head of the user acting as a passive viewer. Besides the fact that Jarrett does not show a headrest, there is no description in Jarrett of the actuator of Jarrett causing the helmet of Jarrett to execute attitudinal movements for emulation by the head of the trainee pilot acting as a passive viewer. Rather, Jarrett simulates a reasonable proportion of the apparent weight change of a standard helmet to simulate aircraft accelerations, which have the major effect on the pilot which appear to him to be increased weight on a vertical line. Even if Jarrett's actuator were to cause vertical movement, which Jarrett specifically said is to be avoided, such movement would only be a translation in position along a vertical line, not corresponding to the claimed attitudinal movements.

The further limitations of claim 2 regarding a portion of the images having high informational content are also related to the passive quality of the viewer, so that the eye of the viewer emulates the full view of viewing presented. The simulator pilot of Thomas, on the other hand, controls where the high resolution imagery appears with respect to the imagery on the display surface 14.

Thus, even if the high-resolution insets of Thomas were combined with the helmet loader of Jarrett, there would still be no passive viewer who executed attitudinal movements according to movements of the headrest as actuated by the actuator.

Regarding claims 3 and 4, although the projectors of Thomas might inherently include some optical lenses for adjusting the focal lengths, such would be just to adjust the focus and would have nothing to do with what is claimed in claims 3 and 4, which are related to image viewing itself for viewing images at various apparent distances according to a variable magnification control signal applied to the variable magnification device. Once the projector's focus is set up, there is no further need to change it, and certainly not in response to a variable magnification control signal, which is used for changing image viewing to view images of various apparent distances, as claimed. In claim 4, the eye of the viewer views these changing apparent distances with correspondingly changing accommodation. This has nothing to do with changing the focus or automatic lens focal length adjusting means, even if it is done in a remote-controlled way. Withdrawal of the obviousness rejection of claims 3 and 4 is requested.

Regarding claims 5 and 6, although Thomas mentions stereoscopic embodiments, it is for an active simulator pilot viewer, and claims 5 and 6 are stereo images for a passive viewer. Regarding claim 7, which depends from claim 6, and claim 8, which depends from claim 7, both of these have the limitations similar to those of claims 3 and 4 above, and the same comments made there apply here as well. Withdrawal of the 35 USC 103 rejection of claims 5-8 is requested.

Regarding claim 9, Thomas merely discloses that the background imagery may be made stereoscopic, but does not discuss that the area of interest 406 should be converged on at changing points of fixation with correspondingly changing convergence by the eyes of the pilot. Rather, it is usual in this kind of a display surface 14 for the pilot to converge at distances other than the distance of the display surface. This is because of the peculiar nature of most stereoscopic displays, where the accommodation of the eyes of the viewer remain the same, i.e., focused on the screen, but the convergence is changed while fixating on different objects both before and behind the screen. If the Examiner will note that claim 9 depends from claim 8, it will be seen that the changing points of fixation with correspondingly

changing convergence correspond to the changing accommodation, as claimed in claim 8. This means that the simulator pilot of Thomas does not in any way show or suggest what is claimed in claim 9, because Thomas does not show or hint at changing the apparent distances of the imagery presented to the pilot. Withdrawal of the obviousness rejection of claim 9 is requested.

Regarding claim 14, the same comments made above in connection with the rejection of claim 10 apply here as well. Withdrawal of the obviousness rejection of claim 14 is requested.

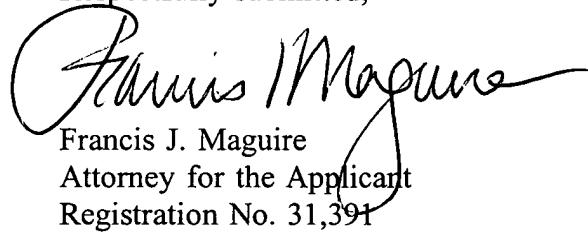
Regarding claims 15-16, although the apparatus shown in Jarrett resembles articulated arms connected in a complex robot-like configuration, as explained previously, Jarrett does not contemplate carrying out any movements whatsoever; and even if there were some movements, they would only be vertical translations, which would definitely hurt the neck of the pilot. The only purpose of Jarrett is to exert a bit of force on the pilot's helmet to simulate gravitational forces experienced during flight. It is not to guide the head of the pilot for changing orientation. Withdrawal of the obviousness rejection of claims 15 and 16 is requested.

Regarding the 112, second paragraph, rejection of claims 15-16, the above amendment overcomes said rejection, and withdrawal thereof is requested.

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The objections and rejections of the Official Action of July 2, 2003, having been obviated by amendment or shown to be inapplicable, withdrawal thereof is requested, and passage of claims 1-16 to issue is solicited.

Respectfully submitted,



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